

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Application of:

Anandaroop Bhattacharya et al.

Application No.: 10/723,533

Filed: November 26, 2003

For: THERMAL MANAGEMENT
DEVICE FOR AN INTEGRATED
CIRCUIT

Examiner: Chervinsky, Boris Leo

Art Unit: 2835

Confirmation No.: 8659

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Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

APPELLANT'S REPLY BRIEF

TO THE HONORABLE COMMISSIONER FOR PATENTS:

This reply brief is in response to Examiner's Answer mailed August 27, 2007 (hereinafter "Examiner's Answer"). Appellant respectfully requests consideration of this reply brief and allowance of the present patent application.

Remarks

In the Examiner's Answer, it is stated, in essence, that a reasonably broad interpretation of the case's plate being "attached to the surface of the die," as used in claim 32, for example, permits a thermal management device being coupled to a die through any number of interposing elements such as circuit boards, packages, solder balls, etc. The Appellant traverses this statement.

One skilled in the art interpreting "plate attached to the surface of the die" in light of the present specification, would clearly understand that the plate is directly coupled to the surface of the die without any interposing elements other than those used for said attachment, e.g., an adhesive such as a thermal interface material. This definition is clearly derived from the consistent and unambiguous use of the term "attach" throughout the specification. "The case **48** may be attached to the heat source **24** with a thermal interface material," which could be a solder paste. Specification, paragraph [0021] and Figure 1.

The Examiner also states that "attached" does not mean "directly attached." The Appellant's agree and point to paragraph [0019] of the specification to elucidate the difference. This paragraph explains that growing a porous material directly on a case results in the porous foam being attached directly to the case. Thus, two elements are "attached" to one another if they have an adhesive between them; while two elements are directly attached to one another if they are in direct physical contact without even an adhesive being disposed therebetween.

As the prior art only teaches indirect coupling of the plate of a thermal management device to a die through a number of interposing materials, it clearly fails to teach or suggest a plate attached to the surface of the die as recited in claim 32, for example.

With respect to claim 47, the Examiner states that a "reasonably broad interpretation" of a "sealant facilitating a watertight seal between the case and the die" can be taught by elements 13, and 16 – 19 of Ozmat. The Appellant traverses this statement.

The fluid in Ozmat is entirely contained within the case defined by the MMC plate 13, the bottom cover plate 17, the inlet structure, and the outlet structure. Thus, at best, Ozmat teaches a sealant at the joints between these components. However, there is no reasonable interpretation of "sealant facilitating a watertight seal between the case and the die" that would be made obvious from the sealants disclosed in Ozmat.

The remainder of the Examiner's Answer is composed of statements repeated from the Final Office Action or statements that are otherwise sufficiently addressed in the Appellant's Appeal Brief.

CONCLUSION

Appellant respectfully submits that all the appealed claims in this application are patentable and requests that the Board of Patent Appeals and Interferences overrule the Examiner and direct allowance of the rejected claims.

We do not believe any fees are needed at this time. However, if it is determined that fees are necessary, please charge our Deposit Account No. 500393. In addition, please credit any overages to the same account.

SCHWABE, WILLIAMSON & WYATT, P.C.

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